

Claims

- [c1] 1.A controlled phase locked loop system, comprising:
- a)an oscillator responsive to a control parameter;
 - b)a measurement device for measuring said control parameter and outputting a comparison indicator; and
 - c)a controller operatively connected to said oscillator and said measurement device and adapted for receiving a plurality of operating parameters and adapting the controlled phase lock loop system as a function of said operating parameters and/or comparison indicator to substantially center said control parameter to a pre-selected value.
- [c2] 2.A controlled phase locked loop system according to claim 1, wherein said plurality of operating parameters includes environmental parameters.
- [c3] 3.A controlled phase locked loop system according to claim 1, wherein said oscillator has a topology and said controller dynamically changes said topology.
- [c4] 4.A controlled phase locked loop system according to claim 3, wherein said oscillator is a multi-stage oscillator having a plurality of stage modes and said controller changes the topology at least in part by changing said oscillator among said plurality of stage modes.
- [c5] 5.A controlled phase locked loop system according to claim 1,

further comprising a power-on-reset history buffer for storing a subset of said plurality of operating parameters, said controller utilizing said subset during a warm start.

- [c6] 6.A controlled phase locked loop system according to claim 1, further comprising a loop filter responsive to said controller.
- [c7] 7.A controlled phase locked loop system according to claim 1, further comprising a charge pump responsive to said controller.
- [c8] 8.A controlled phase locked loop system according to claim 1, wherein said oscillator is a voltage controlled oscillator and said control parameter is voltage.
- [c9] 9.A controlled phase locked loop system according to claim 1, further comprising at least one of an input divider, an output divider and a feedback divider each responsive to said controller.
- [c10] 10.A method of controlling a phase locked loop having a setup and controlled using a control parameter, comprising the steps of:
 - a)varying the setup of the phase locked loop as a function of a plurality of operating parameters; and substantially centering the control parameter to a pre-selected value.

- [c11] 11.A method according to claim 10, wherein the oscillator is responsive to a loop filter, the method further comprising the step of controlling the loop filter as a function of said plurality of operating parameters.
- [c12] 12.A method according to claim 10, wherein said plurality of operating parameters includes environmental parameters, the method further comprising, prior to step a, the step of collecting said environmental parameters.
- [c13] 13.A method according to claim 10, wherein step a includes reading at least some of said plurality of parameters from a power-on-reset history buffer.
- [c14] 14.A method according to claim 10, wherein step b includes measuring the control parameter and then comparing the control parameter to said pre-selected value.
- [c15] 15.An electronic device, comprising:
 - a)at least one semiconductor chip containing a controlled phase locked loop system that includes an oscillator responsive to a control parameter and at least a portion of a control system adapted for controlling said oscillator, said control system comprising:
 - i)a plurality of sources for providing a plurality of operating parameters;
 - at least one state machine operatively connected to said

plurality of sources, said at least one state machine adapted for substantially centering said control parameter as a function of said plurality of operating parameters.

- [c16] 16.An electronic device according to claim 15, further comprising a measuring device adapted for comparing said control parameter to a pre-selected value, said measuring device operatively providing a comparison indicator to said at least one state machine adapted for substantially centering said control parameter as a function of said comparison indicator.
- [c17] 17.An electronic device according to claim 15, wherein said semiconductor device further comprises a loop filter operatively connected to said oscillator and a comparator operatively connected between said loop filter and said at least one state machine for use in substantially centering said control parameter.
- [c18] 18.An electronic device according to claim 15, wherein said controlled oscillator system has a topology and said at least one state machine dynamically changes said topology so as to substantially center said control parameter.
- [c19] 19.An electronic device according to claim 18, wherein said oscillator is a multi-stage oscillator having a plurality of stage modes and said at least one state machine changes said

topology at least in part by changing said oscillator among said plurality of stage modes.

- [c20] 20. An electronic device according to claim 15, further comprising a power-on-reset history buffer for storing a subset of said plurality of operating parameters, said at least one state machine utilizing said subset during a warm start to substantially center said control parameter.